New Graduate Nurses' Perceived Definition of Critical Thinking During Their First Nursing Experience

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Critical thinking (CT) is a flourishing concept that has been developing throughout the fields of both nursing education and practice. In fact, every person thinks in his or her own way that is varied among individuals; it is the nature of human mankind to do so. Nevertheless, much of our thinking might be subjective, indefinite, limited, conventional or inclusively narrow-minded. CT is an essential expected competency of nurses at all levels of education and practice, and is a required component of nursing programs, including critical care nursing training programs (National League for Nursing Accrediting Commission, 2006). Various authors have accentuated the need for nurses to be able to think critically in order to apply the proper theoretical knowledge in their clinical skills, using reasonable judgments in providing high standards of quality patient care. Yet, each author has defined CT in a different way. Luckowski (2003) reported that CT is basically the ability to analyze and appraise evaluations.

The researcher has been surprised by what CT is and what it means to nursing graduates and practicing nurses. So, he searched an extensive literature related to this concept and conducted this study to further explore the definition of CT from the perspective of novice critical care nurses based on their experiences in their first nursing orientation. Based on the participants' perceived definitions of CT, this study will provide data that could influence the implementation of future nursing orientation programs conducive to CT development. The knowledge generated from this study could benefit critical care nurses and nurse educators, and contribute to the enhancement of the patients' outcomes. It will also be a contribution to the research and literature in the discipline of CT in nursing education.

Literature Review

Critical thinking (CT) has been defined as the ability to identify a problem, select pertinent information needed to solve the problem, recognize stated and unstated assumptions, select relevant hypotheses, draw valid conclusions, and justify the validity of inferences (De-Young, 2003). Critical thinking was further described as a collection of intellectual traits that include the ability for intellectual capacity, a stimulating environment and motivation on the part of the thinker (Eku, 2008). Also, there has been a lack of consensus of a standard definition of CT across the disciplines, including psychology and nursing. Scheffer and Rubenfeld (2000) believed that the habits of the mind of CT in nursing include confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection. Skills of CT in nursing consist of "analyzing, applying standards, discriminating, information seeking, logical reasoning, and predicting and transforming knowledge" (Scheffer & Rubenfeld, 2000, p. 352). Facione (2006) defined CT as purposeful, self-regulatory judgment; an interactive, reflective, reasoning process of making a judgment about what to believe or what to do.Critical thinking has been an outcome of nursing education and nursing practice. Critical thinking has been fundamental as one of the core competencies in the professional preparation of nurses who need to think critically to be competent, safe, and skillful providers of care (Commission on Collegiate Nursing Education, 2006). In the nursing profession, the ability to think critically is essential. The responsibilities of a nurse have increased over the years. In correlation with this increase in responsibility comes the additional increase in educational core requisites required to achieve a degree in Nursing. The American Nurses Association (2008) Standards has set forth

the framework necessary for CT in the application of the nursing process, the tool by which all nurses can equally become proficient at CT. The nursing process contains the following criteria: assessment, diagnosis, planning, implementation, and evaluation. It is in the application of each of these processes that the nurse may become proficient at CT.

Purpose

The purpose for this study was to explore the perceptions of new graduate nurses of their definition of CT based on their first critical care nursing experience. The study strived to answer the following research question: How do new graduate nurses characterize the definition of CT based on their first nursing experience during the critical care orientation programs?

Method

Design

The study used an exploratory qualitative descriptive design, using semi-structured interview methodology (Polit and Beck, 2010) to explore the new graduate nurses' perceived definition of CT.

Sample and Setting

This study used a convenience non-probability sample that included 16 new graduate nurses who were hired in two hospitals; 8 participants from each hospital. The participants were new graduate nurses who completed their bachelor degrees in nursing. They had been hired in critical care units for their first nursing experience as registered nurses. The settings of this study included two of the largest hospitals in the East Coast. Both hospitals are major teaching hospitals affiliated with a major academic medical school in the United States of America. These hospitals are matched for their

geographical setting and teaching affiliation, are both tertiary care teaching hospitals that offer similar training programs that have the same content for new graduates to work in their critical care areas.

Ethical Considerations

Participation in this study was voluntary. Use of numeric codes instead of names ensured confidentiality of the data. Before starting data collection, Institutional Review Board (IRB) approvals were obtained from both hospitals. All participants signed informed consents prior to the administration of the demographic questionnaire and the conduction of the interview. They were informed that they may refuse to answer any question on the survey or the interview. The interviews were conducted at times and locations convenient to the participants.

Data Collection and Analysis

The data in this study were collected using a demographic survey, which each participant completed at the beginning of the graduates' six-month hospital orientation, and a semi-structured interview, in which all participants took part at the end of their orientation. These data were analyzed using the content analysis method to identify key points that describe the graduate nurses' perceptions of their definition of CT based on their nursing experiences. The researcher described the perceptions and experiences of the new graduates. Codes were used and the data were transformed, identifying features and describing interrelations. Then themes and patterns within the data were identified. The researcher provided an interpretation of what has been happening, based on the participants' responses during the interviews. All of the interviews were audio-taped and transcribed verbatim into a written text for data analysis. Because transcript errors are almost inevitable, the researcher listened to all the taped

interviews to check for the transcription accuracy. Actual names were replaced by codes to maintain confidentiality of data. The analysis of the data from the transcripts generated the major themes of the study findings.

Results

The data from the demographic questionnaires revealed that the new graduate nurses who participated in this study ranged from 21 to 35 years of age. The statistical program for social sciences (SPSS) version 19.0 was used for data analysis. The participants' average age was 24.5 years, with a standard deviation of 4.32. All (100%) of the new graduates were females. Each of them graduated from an accredited school of nursing with a Bachelor of Science in nursing degree (BSN). All participants spoke English as their first language. Only one (6.25%) participant was from a Hispanic ethnic background, while the rest (93.75%) were Caucasians. The majority (87.5%) of the participants had no other non-nursing education. However, only two (12.5%) had at least one additional degree: one participant had a BS in Neuroscience and the other one received an Associate degree (AD) in Liberal Arts and a Bachelor degree in Science.

Three key themes emerged as the participants verbalized their perceptions and experiences about CT definition. The major themes included multi-perspective thinking, analytical activities, and decision making process. As the data analysis progressed from interviews to making meaning of the graduates' perceptions and experiences, major themes resulted from the patterns that indicated further sub-themes. Table 1 depicts the arrangement of themes and sub-themes.

Table 1 Main Themes and Sub-themes used in Coding

Multi-Perspective Thinking	**Analytical Activities**	**Nursing Process Functions**
Sub-themes	*Sub-themes*	*Sub-themes*
Expansive Thinking	Analysis	Assessment
Anticipating Problems	Inquisitiveness	Planning
Reflection	Problem Solving	Taking Actions

Multi- Perspective Thinking

Each new graduate defined CT from her own perspective. The graduates descried CT as a unique way of thinking that takes into account more than one point of view. Based on these definitions, the following four sub-themes were developed:

Expansive Thinking

Expansive thinking denotes stretching the thinking skills with more challenging situations to view the whole picture. Fifteen out of sixteen (93.75%) of the participants described CT as an expansive thinking that is open to multiple possibilities in viewing the big picture considering a variety of perspectives. All of the participants (100%) described CT as an essential skill in nursing practice that requires expanding our thinking to explore clinical situations beyond the superficial concrete patient's picture. All of them reported that CT occurred continuously throughout their training and it expanded with their experiences in the critical care units until it became their second nature, by the end of the training. Nurse 11 said "To be a critical thinker, a new graduate should first learn how to think, then expand this thinking and practice it without limitations or restrictions." Nurse 7 stated

> "We need to expand our thinking to be fully aware of why we're doing what we're doing to avoid any risks and adverse outcomes that might happen due to narrow thinking and task-oriented actions." Nurse 13 stated that "CT is something that you have to learn and practice, it's looking at the whole clinical picture, taking knowledge and putting it all together." Correspondingly, Nurse 5 defined CT using a different term to mean expansive thinking, stating "I think it's the ability to think outside the box and keep an open mind."

Anticipating Problems

Eleven out of sixteen (68.75%) of the participants stated that anticipating problems is a CT skill that is essential in critical care nursing practice and that it is the ability to predict or think in advance so that nurses can avoid complications before they happen. Nurse 9 said "To me, CT is not only being able to join the dots and cross the Ts, but to anticipate the next dot as well." Nurse 13 stated that if she had a patient the day before, and was able to note a difference in that patient, she might be able to foresee that something bad might take place, "Predicting something might happen and taking action to prevent any complication is kind of CT." Nurse 12 defined CT as follows "It's really the ability to see things a little bit before they happen and use the tools that you have to anticipate a potential problem and get to it before it becomes a real problem." Nurse 10 said,

> "CT is looking at my patient, and try to figure out what might harm or kill him/her immediately, what might harm or kill him/her in the short term, and what might kill him/her in the long term. Then I start thinking critically how to interfere to prevent all the predicted harms".

Reflection

The process of reflection is an essential component of CT development as the graduate nurses perceived that they think critically while they reflect on their learning to improve their clinical experiences. Fifteen out of sixteen (93.75%) of the new graduate nurses reported that they used effective reflection throughout their training. When these nurses reflected on past experiences, they perceived that their knowledge increased and their CT level moved to a higher level. Fourteen out of sixteen (87.5%) of the participants described reflection as a major part of CT referring specifically to the process of analyzing and making judgments about what has happened. Nurse 1 stated "CT can be defined as a process involving reflection on nursing actions. CT takes place when the nurse reflects upon clinical situations by asking questions such as "How did I do in this specific situation? Did I feel comfortable and why? Were my actions appropriate to the situation? What right and wrong actions did I take? How could I have improved the situation for myself and for the patient? Did I learn anything new from this experience? Has the situation changed my way of thinking in any way? How can I apply what I learned from this experience in future events?" Nurse 16 described CT as reflection, which is a way to learn from one's mistakes. In addition, CT was described by Nurse 10 as "an everyday reflection on our clinical practice." Nurse 1 said,

> "CT is a necessary skill for all nurses, but one cannot think critically without reflecting on their own actions both during a patient encounter and after the situation. Reflection provides a way for sharpening CT skills as each situation becomes a conscious learning experience that enhances CT about future occurrences. The more you reflect on your actions the

> better you become aware of the need to constantly evaluate, review, and think critically to improve your practice and consider the various perspectives affecting it."

Analytical Activities

The graduates perceived CT as a process that involves analytical activities of proficiently conceptualizing, analyzing, and evaluating information gathered from observations, experiences, reflection, or communication, as a guide to the nurses' actions. These perceived analytical activities emerged from the participants' interviews and included the following themes:

Analysis

The graduates perceived analysis as the inspection of pertinent information to choose the best course of action from various options. Nurse 13 stated "Analyzing results of the entire patient's data like the signs and symptoms, labs, vital signs, and putting together a bunch of information to think of the whole patient clinically. Analyzing the data helps in thinking of ways to fix the problem." Nurse 4 stated "Analysis is CT and to think critically is how to analyze the signs and symptoms to prevent complications and save the patients' lives." Nurse 9 stated,

> "If my patient came back from surgery and he looks pale, I need to be able to analyze his situation in order to think what might have happened during surgery and consider the worst that can happen after surgery. I have to analyze the lab values in this case to check if pallor may be due to bleeding. I also have to analyze the vital signs to check if it's related to changes in blood pressure or heart rate. I need to be able to look at the patient's history to analyze what was done to

> him to potentially cause this problem and consider what can go wrong. It's only after analyzing the complete picture that I can confidently say 'I am thinking critically' and then accordingly I can do something to help improve the patient outcomes and quality of life."

Inquisitiveness

In their description of CT, fourteen out of sixteen (87.5%) of the participants referred to CT as the process of inquisitiveness that entails seeking explanation and information and asking several questions to learn what is unknown. Nurse 10 associated inquisitiveness with open-mindedness. She stated "CT is just being open-minded, constantly questioning, and never settling for an answer. Keep thinking and reflecting on your thinking in order to think deeper about the patients' issues, what they might suffer from till you solve their problems." Nurse 5 reported "I think just by asking questions, you're raising awareness of how you think. Inquisitiveness is a gift to learners because we don't often think of how we think." Nurse 2 said "You cannot think critically without being inquisitive. To me CT is not only applying your knowledge base and the nursing process; but it's mainly to ask yourself 'What is going on here, for instance, why my patient's urine output is dropping? Is s/he hydrated enough? Is the patient going into any kind of shock? "What may happen if I do or I don't do specific actions?' Such inquisitiveness is CT that would ignite appropriate plans of action to save the patient."

Problem Solving

Participants perceived problem solving as a cognitive, mental process that involves thinking critically to solve problems. Fifteen out of sixteen (93.75%) of the participants revealed that problem solving is a crucial constituent of CT. Nurse 12

stated "CT is problem solving. I had a patient who did not have a chair that was needed on the floor. I ran up to the other unit and got one. My trainer nurse told me that getting a chair in that situation indicated that I used CT skills to solve the patient's problem." Nurse 3 stated

> "I would plan for my patient's care by thinking critically to solve that problem." Nurse 5 said "I think ahead, and potentially solve issues that may come my way." Nurse 14 stated "CT is a way to solve our patients' problems."

Decision Making Process

The decision making process is a method that includes the following steps: assessment, planning, and implementation.

Assessment (Identifying Problems)

Assessment is considered the most critical step in the decision making process and it involves collecting, organizing, and analyzing information about the patient. Fourteen out of sixteen (87.5%) of the new graduates emphasized that CT was incorporated in every single step of their decision making process to provide patient's care. For instance, Nurse 15 reported "If you're doing any assessment, CT is involved. It's basically doing the assessments and thinking deeply what's wrong and what needs to be done. I believe CT starts with assessment and applying CT to make sound decisions to take the most appropriate actions to save patients." Moreover, Nurse 2 defined CT as the application of assessment "CT is using assessment skills in identifying patient problems, analyzing them in terms of their implications for the underlying disease process, and taking decisions to act thoughtfully to optimize the clinical situation and help patients out." Nurse 13 said "If you give an antihypertensive medication to someone with an already low blood pressure

(BP), he might develop hypotension or shock. This is task oriented nursing at its worst. CT starts with assessment to check patient's BP to make a decisions whether to give the drug".

Planning

The participants described planning as a process that incorporates the establishment of patient outcomes to determine related nursing interventions that are most likely to help patients achieve the favored outcomes. Nurse 3 said "The first step of CT is to assess patient's vital signs and chief complaints to formulate a problem. That process helped me think about putting all data together to plan the care by thinking critically about how to make proper clinical decisions." Thirteen out of sixteen (81.25%) of the participants attributed planning not only to plan the care of patients, but also to plan the nurse's clinical day. Nurse 3

> "I think CT is not only the ability to problem solve, work outside of the box and anticipate problems; rather it is the ability to formulate different plans of action for dealing with patient problems. Planning is a CT skill that all nurses should have. If I give insulin to my diabetic patient I have to think critically to plan a follow up care. CT entails coming back to check on the patient's blood sugar level to figure out the effectiveness of treatment. CT also involves planning on patient teaching of signs and symptoms of low blood sugar, a major side effect of insulin and ways to report to the nurse any sudden changes. I believe that such planning of care is CT that facilitates making decisions."

Taking Action

Thirteen out of sixteen (81.25%) of the new graduate nurses

reported that taking actions did not only help them foster their CT, but rather it provided them with more satisfaction especially if the action was fast enough to save their patients. Nurse 3 said "To think critically is a way to act fast and change the course of treatment when the care plan is not working as supposed to do." Likewise, Nurse 2 emphasized that CT included "skills in identifying patient problems, analyzing those problems, and taking action to make appropriate decisions that would optimize the patient's clinical situation and prevent any potential complication." Nurse 8 stated,

> "CT is taking appropriate actions to support patient needs. I took care of a patient who had trouble breathing. I immediately checked his oxygen saturation and found it slightly low. I swiftly looked at his chest movement, color and listened to his lungs. I then applied face mask to administer oxygen and called my trainer nurse who commanded me for the situational awareness and he said that my interventions were absolutely CT in action."

Discussion

The participants' perceived definitions of CT were described as thinking broadly and deeply about the pig picture. This is in harmony with Heffner and Rudy (2008) who asserted that the complex educational and professional problems confronting nurses emphasize the need for more than rote memory, knowledge of skills, and the ability to follow directions. Each graduate nurse in this study defined CT from her own perspective. The majority of the participants described CT as incorporating analytical thinking activities that include analysis, inquisitiveness, and problem solving. These descriptions are in conformity with Facione (2006), who defined CT as "the purposeful, self-regulatory judgment

which results in interpretation, analysis, evaluation, and inference (p.21)." The participants' CT definitions as analytical activities are also in alignment with Tanner (2005) who defined CT as the ability to interpret, analyze, and challenge clinical situations to make decisions and take appropriate action to improve them.

Moreover, the majority of the participants defined CT as incorporating multi-perspective thinking processes such as expansive thinking, anticipating problems, and reflection. These definitions were also in harmony with Facione (2006), who described the ideal critical thinker as one who "is inquisitive, well-informed, faces personal biases, makes prudent judgments, is clear about issues, diligently seeks relevant information, selects reasonable criteria, and persists in seeking precise results" (p.21). The new graduates' definitions also conform to Scheffer and Rubenfeld (2000), who elucidated that critical thinkers habitually demonstrate inquisitiveness, confidence, contextual perspective, flexibility, intuition, open-mindedness, and reflection. These authors proposed that the CT skills in nursing consist of analyzing, applying standards, logical reasoning, predicting, and transforming knowledge.

The vast majority of the participants in this study defined CT as similar to the decision making process that encompasses assessment, planning, and taking actions. This definition conforms to Rogal and Young (2008) as well as Wilkinson (2006), who suggested that nurses should think critically and independently to make better clinical decisions about their patients' care. In addition, the CT definitions of the participants conform to Paul (2004) and Staib (2003), who described CT as a complex process that requires rational investigation of ideas, inferences, arguments, and taking appropriate actions to make reasonable decisions related to various issues.

The findings of this study have important

implications for education in general and nursing education in particular. The results indicate that the graduates were able to acknowledge an understanding of the concept of CT as drawn from their critical care nursing experiences during their orientation. It is crucial for educators to explore how new graduates perceive CT. To maintain high quality patient care, nurse educators have crucial obligations to identify, implement, and evaluate educational strategies that develop CT in new graduate nurses hired to work in critical care units. Educators should design orientation programs conducive to CT development that meet the learning needs of the new graduates based on their educational level.

It is suggested for hospitals of critical care orientation programs to hire nursing and educational leaders, who understand the depth and breadth of CT and to foster it not only in critical care nurses, but in nurses who work in all hospital's units as well. These leaders can then serve as consultants for the rest of the nurse educators and work collaboratively with them to design innovative orientation programs that would generate critically thinking nurses. Such innovative training would ensure the flexibility and cost-effectiveness benefits of hospitalization of patients when engaging the new graduate nurses in active hands-on experiences to better prepare them for their critical care clinical practice.

Such innovative programs may also decrease the need for longer orientation programs as they will be tailored to facilitate the transition of new graduate nurses from their role as students to their new roles as critically thinking nurses. By facilitating the understanding of new graduates' CT related to their core critical care nursing knowledge and principles, the new graduates will be well equipped to employ problem solving, clinical decision-making, and CT to improve the standards of nursing care without jeopardizing patient safety.

Although this study did not measure differences in

the knowledge, technical skills, or CT skills, the new graduates perceived definitions of CT clearly revealed their perception of the importance of CT in their plans of care during their orientation. Staff satisfaction is an important benefit to be considered by any employer as it aids staff retention, fosters collaboration, and improves patient outcomes.

This study provides many avenues for future research. It is recommended to conduct research using similar research questions with a larger sample, including a variety of male and female nurses from various ethnic backgrounds and ages to validate the findings of this research about how new graduates perceive the definition of CT. It is recommended to replicate this research by interviewing new graduates and the nurses who train them to explore the perceived definition of CT from all perspectives. A research study is also needed to further explore new graduates' CT definitions and compare their self-perceived CT definitions with how these definitions are perceived by their respective trainers, staff colleagues, and nurse managers. A future mixed-method design, both quantitative and qualitative research is also needed not only to explore novice nurses' perceptions of CT definition, but also to measure their CT skills at the time of hire, prior to their orientation, and then upon the training program completion, and perhaps again after 6 months or one year of practice as independent critical care staff nurses.

Limitations

One of the noted limitations of this study was the small sample size although saturation of the data was achieved and voluntary recruitment contributed to robust qualitative data. This small sample size (16) prevented all possible realities of the new graduate nurses' perceptions of their perceived definition of CT to be adequately explained. The detailed description of the study's context and depth of the new

graduate nurses' responses may have minimized this limitation; yet, these limitations may hinder the generalization of the findings to all nurses in practice at all critical care units in the USA.

Another limitation was that all of the participants were females. With the welcome rise in men entering the nursing profession this is an important limitation of the study to consider. Similarly, as more nurses are entering the profession later than previous cohorts, the young ages of the study sample may limit the generalization of this study to older new graduate nurses.

Conclusion

The expanding roles in health care delivery system require nurses to be capable of CT. It is imperative that nurses be able to think critically in order to identify and address the varied health and illness needs of their patients. The literature suggests that nursing practice and patient outcomes are improved by nurses' CT. This research study explored the perceptions of new graduate nurses of their perceived definition of CT. The study results demonstrated that each new graduate nurse had her own perspective of what CT is. The participants' definitions were in alignment with the literature of CT. The findings have crucial implications for education and nursing training programs.

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